

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Kazuhisa TSUNOI et al.**

Serial Number: **Not Yet Assigned**

Group Art Unit: **Not Yet Assigned**

Filed: **February 8, 2001**

Examiner: **Not Yet Assigned**

For: **MOUNTING METHOD OF SEMICONDUCTOR DEVICE**

PRELIMINARY AMENDMENT

Director of Patents and Trademarks
Washington, D.C. 20231

March 14, 2001

Sir:

Prior to Examination of the merits, please amend the above-mentioned application as follows:

IN THE CLAIMS:

Add new claims 6 - 11 as follows:

6. A structure comprising:
a semiconductor device having bumps;
a board having pads so that each of the bumps is joined to a corresponding one of the pads,
each of the pads having a deformed portion with which a corresponding one of the bumps contact;
and
an insulating adhesive provided between the semiconductor device and the board, wherein
contraction of the insulating adhesive maintains joints of the bumps and the pads, said joints

being made by deformation of the pads.

7. A structure according to claim 6, wherein

said bumps of said semiconductor device are pressed on said pads of said board,

a portion in which each of said bumps and a corresponding one of said pads are in contact with each other is heated, wherein pressure of said bumps against said pads reaches a predetermined value which plastically deforms said pads before a temperature of said insulating adhesive to which heat is supplied in step (b) reaches temperature at which said insulating adhesive is hardened, wherein

said insulating adhesive has heating characteristics by which liquidity of said insulating adhesive is produced by an initial heating stage and said insulating adhesive is gradually hardened with increasing temperature.

8. A structure according to claim 6, wherein

a head heated at a temperature at which said insulating adhesive is hardened presses said semiconductor device on said board so that each of said bumps is pressed on a corresponding one of said pads, wherein pressure of said bumps against said pads reaches a predetermined value which plastically deforms said pads before a temperature of said insulating adhesive to which heat is supplied from said head reaches temperature at which said insulating adhesive is hardened,

said head is released from pressing said semiconductor device after said insulating adhesive is completely hardened, wherein

said insulating adhesive has heating characteristics by which liquidity of said insulating adhesive is produced by an initial heating stage and said insulating adhesive is gradually hardened with increasing temperature.

9. A structure according to claim 6, wherein

said bumps of said semiconductor device are pressed on said pads of said board so as to plastically deform the pads before the insulating adhesive is hardened, and pressing of said bumps is stopped after the insulating adhesive is hardened.

10. A structure according to claim 6, wherein

said bumps of said semiconductor device are pressed on said pads of said board so as to plastically deform the pads before the insulating adhesive is hardened, by a head heated at a temperature at which the insulating adhesive is hardened, and

the head is released from pressing the semiconductor device after the insulating adhesive is hardened.

11. A structure according to claim 6, wherein

a member between said semiconductor device and said board is provided, said member having a thermal characteristic of delaying transmission of heat, and

a heat treated at a temperature at which said insulating adhesive is hardened presses said semiconductor device on said board so that each of said bumps is pressed on a corresponding one

of said pads, wherein pressure of said bumps against said pads reaches a predetermined value which plastically deforms said pads before a temperature of said insulating adhesive to which heat is supplied from said head reaches temperature at which said insulating adhesive is hardened.

Patented 6 September 1960

REMARKS

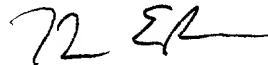
Claims 6 - 11 are pending in this application. By this Preliminary Amendment, new claims 6 - 11 have been added.

The above amendment to the claims has been made to put the application in better condition for examination.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Respectfully submitted,

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